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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,511	11/26/2003	Mauri Saksio	60279.00071	6152

32294 7590 11/27/2007
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EXAMINER	
LOO, JUVENA W	

ART UNIT	PAPER NUMBER
2616	

MAIL DATE	DELIVERY MODE
11/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/721,511	SAKSIO, MAURI	
	Examiner	Art Unit	
	Juvena W. Loo	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 September 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This is in response to amendment filed on September 24, 2007 in which claims 1 to 12 were amended and claims 13 – 18 were added.

Status of Claims

Claims 1-18 are pending, of which claims 1, 5, 9, 14, 16, 17, and 18 are in independent form.

1. Applicant's arguments filed September 24, 2007 have been fully considered but they are not persuasive.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 5, 6, 8, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Hamami (US 6,222,820 B1).

Regarding claim 5, Hamami discloses a method comprising:

monitoring the state of an active up-link in the host device (Hamami: column 9, lines 44-48: once the primary and redundant connections are established, the end user or the network edge switch continuously checks the validity of the primary connection), and

starting a recovery process in a host device if said active link is in the link-down state (Hamami: column 9, lines 62-65: the entity that detects a failure immediately notifies the other end user and switches the data traffic from the primary to the redundant connection).

Regarding claim 6, Hamami discloses all the limitations of claim 5. Additionally, Hamami discloses the discovery process comprises:

notifying host software of the link failure in the active uplink (Hamami: column 9, lines 62-63: the entity that detects a failure immediately notifies the other end user); and

changing an active data path to the redundant up-link (Hamami: column 9, lines 63-65: the entity that detects a failure switches the data traffic from the primary to the redundant connection).

Regarding claim 8, Hamami discloses all the limitations of claim 6. Additionally, Hamami discloses that the redundant up-link is a doubling up-link for the active up-link (Hamami: column 3, lines 30-35: a primary virtual circuit connection is established from the source end user to the destination end user via a first route, a redundant virtual

circuit connection is established from the source end user to the destination end user via a second route, where the second route is redundant to the first route).

Regarding claim 17, Hamami discloses a host device comprises monitoring means

for monitoring the state of an active up-link (Hamami: column 3, lines 55-57: The Operations, Administration and Maintenance (OAM) F5 end to end cells is used to detect the failure of the primary path) and

for starting a recovery process if said active link is in the link-down state (Hamami: column 9, lines 62-65: the entity that detects a failure immediately notifies the other end user and switches the data traffic from the primary to the redundant connection).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-4, and 9-16, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamami (US 6,222,820 B1) in view of Lamport et al. (Patent No. 5,138,615).

Regarding claim 1, Hamami discloses a method comprising:

monitoring the state of a critical up-link (Hamami: column 3, lines 55-57: The Operations, Administration and Maintenance (OAM) F5 end to end cells is used to detect the failure of the primary path). However, Hamami fails to teach setting a dependent down-link in a link-down state, if said critical up0link is detected to be in the link-down state.

In the same field of endeavor, Lamport discloses that a dependent downlink is considered to have failed if the uplink connection of a network node fails (Lamport, Column 33, lines 51-59: every host is connected to two switches by distinct links so that if one of the links or the connecting switch fails, the other link can be activated. Similarly, every switch is connected to the rest of the network by at least two links such that the failure of one link will not isolate the host from the rest of the network). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply the failure handling technique disclosed by Lamport into the method of Hamami. The motivation would have been in providing a faster fault detection and recovery procedure.

Regarding claim 2, the combination of Hamami and Lamport discloses all the limitations of claim 1. Additionally, Hamami discloses that specifying the up-link of a network element as a critical up-link, if the failure of said link affects the data flow of a down-link of said network element (Hamami: Figure 1: data from source user 1 passes through switches #1, #6, #5, and #9 to arrive at destination end user 4. Each path between two switches (for example, link between switch #1 and switch #6) must depend on the next link (for example, link between switch #6 and switch #5) to function for the data to get through).

Regarding claim 3, the combination of Hamami and Lamport discloses all the limitations of claim 1. Additionally, Lamport discloses that specifying the link of a network element as a dependent down-link, if there is a critical up-link between said down-link and the next network element (Lamport, Figure 3: data, following path P2, moves from host 136 to host 138 through switch 126 and switch 140. Each downlink (for example, link between host 136 and switch 126) must depend on the next uplink (for example, link between switch 126 and switch 140) for the data to pass through).

Regarding claim 4, the combination of Hamami and Lamport discloses all the limitations of claim 1. Additionally, Hamami discloses that the monitoring of the state of a critical up-link is accomplished by monitoring the quality of the data flow on the link (Hamami: column 3, lines 54-56; column 9, lines 56-57: the Operations, Administration

and Maintenance (OAM) F5 end to end cells are used for detecting the failure of the primary path. If the OAM F5 cells are not received, a failure has occurred).

Regarding claim 9, Hamami discloses an apparatus comprises:

A monitoring device configured to monitor the state of a critical up-link (Hamami: column 3, lines 55-57: The Operations, Administration and Maintenance (OAM) F5 end to end cells is used to detect the failure of the primary path). However, Hamami fails to teach that a dependent downlink is set to a link-down state, if said critical up-link is detected to be in the link-down state.

In the same field of endeavor, Lamport discloses that a dependent downlink is considered to have failed if the uplink connection of a network node fails (Lamport, column 33, lines 51-59: every host is connected to two switches by distinct links so that if one of the links or the connecting switch fails, the other link can be activated. Similarly, every switch is connected to the rest of the network by at least two links such that the failure of one link will not isolate the host from the rest of the network). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply the failure handling technique disclosed by Lamport into the method of Hamami. The motivation would have been in providing a faster fault detection and recovery procedure.

Regarding claim 10, the combination of Hamami and Lamport discloses all the limitations of claim 9. Additionally, Lamport discloses that the controller further comprises:

a physical layer unit configured to monitor he physical state of said up-link (Lamport, Column 34, lines 29-32: every switch detects changes in the network), and

a media access controller configured to change the state of the down-link (Lamport, Figure 18: the process for determining a change in status for a single link of a switch).

Regarding claim 11, the combination of Hamami and Lamport discloses all the limitations of claim 9. Additionally, Hamami discloses that the up-link of the apparatus is a critical up-link, if the failure of said link affects the data flow of a down-link of said apparatus (Hamami: Figure 1: data from source user 1 passes through switches #1, #6, #5, and #9 to arrive at destination end user 4. Each link between two switches (for example, link between switch #1 and switch #6) must depend on the next link (for example, link between switch #6 and switch #5) in the path to function for the data to get through).

Regarding claim 12, the combination of Hamami and Lamport discloses all the limitations of claim 9. Additionally, Lamport discloses that the link of the apparatus is a dependent down-link, if there is a critical up-link between said down-link and the next network element (Lamport, Figure 3: data, following path P2, moves from host 136 to

host 138 through switch 126 and switch 140. Each downlink (for example, link between host 136 and switch 126) must depend on the next uplink (for example, link between switch 126 and switch 140) for the data to pass through).

Regarding claim 13, the combination of Hamami and Lamport discloses all the limitations of claim 9. Additionally, Lamport discloses that the controller comprising an Ethernet controller (Lamport, Column 8, lines 57-61: the switches and hosts monitor the states of links in the Ethernet network).

Regarding claim 14, Hamami discloses the host device comprising:

a controller configured to monitor the state of an active up-link (Hamami: column 3, lines 55-57: The Operations, Administration and Maintenance (OAM) F5 end to end cells is used to detect the failure of the primary path), and

to start a recovery process if said active link is in the link-down state (Hamami: column 9, lines 62-65: the entity that detects a failure immediately notifies the other end user and switches the data traffic from the primary to the redundant connection).

Regarding claim 15, Hamami discloses all the limitations of claim 14. However, Hamami fails to teach that the said monitoring device comprising an Ethernet controller. In the same field of endeavor, Lamport discloses an Ethernet controller (Lamport, Column 8, lines 57-61: the switches and hosts monitor the states of links in the Ethernet network). Thus, it would have been obvious to one of ordinary skill in the art at the time

of the invention to apply the failure handling technique disclosed by Lamport into the method of Hamami. The motivation would have been in providing a faster fault detection and recovery procedure.

Regarding claim 16, Hamami discloses an apparatus comprises monitoring means for monitoring the state of a critical up-link (Hamami: column 3, lines 55-57: The Operations, Administration and Maintenance (OAM) F5 end to end cells is used to detect the failure of the primary path). However, Hamami fails to teach a means for setting a dependent down-link to a link-down state, if said critical up-link is detected to be in a link-down state.

In the same field of endeavor, Lamport discloses that a dependent downlink is considered to have failed if the uplink connection of a network node fails (Lamport, column 33, lines 51-59: every host is connected to two switches by distinct links so that if one of the links or the connecting switch fails, the other link can be activated. Similarly, every switch is connected to the rest of the network by at least two links such that the failure of one link will not isolate the host from the rest of the network). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply the failure handling technique disclosed by Lamport into the method of Hamami. The motivation would have been in providing a faster fault detection and recovery procedure.

Regarding claim 18, Hamami discloses a system comprises:

at least one apparatus comprising a controller configured to monitor the state of a critical up-link (Hamami: column 3, lines 55-57: The Operations, Administration and Maintenance (OAM) F5 end to end cells is used to detect the failure of the primary path), and

at least one host device comprising a controller configured to monitor the state of an active up-link (Hamami: column 3, lines 55-57: The Operations, Administration and Maintenance (OAM) F5 end to end cells is used to detect the failure of the primary path), and

to start a recovery process if said active link is in the link-down state (Hamami: column 9, lines 62-65: the entity that detects a failure immediately notifies the other end user and switches the data traffic from the primary to the redundant connection).

However, Hamami fails to teach that at least one apparatus to set a dependent down-link to a link-down state, if said critical up-link is detected to be in a link-down state.

In the same field of endeavor, Lamport discloses that a dependent down-link is considered to have failed if the up-link connection of a network node fails (Lamport, column 33, lines 51-59: every host is connected to two switches by distinct links so that if one of the links or the connecting switch fails, the other link can be activated. Similarly, every switch is connected to the rest of the network by at least two links such that the failure of one link will not isolate the host from the rest of the network). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to apply the failure handling technique disclosed by Lamport into the method of Hamami.

The motivation would have been in providing a faster fault detection and recovery procedure.

6. Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamami (US 6,222,820 B1) in view of Border et al. (US 7,006,480 B2).

Regarding claim 7, Hamami discloses all the limitations of claim 5. Additionally, Hamami discloses the recovery process comprises:

notifying host software of a link failure in the active up-link (Hamami: column 9, lines 62-63: the entity that detects a failure immediately notifies the other end user);

checking the status of a redundant up-link (Hamami: column 3, lines 55-57: The Operations, Administration and Maintenance (OAM) F5 end to end cells is used to detect the failure of the primary path), and

if said up-link is in the link down state (Hamami: column 9, lines 62-65: the entity that detects a failure).

However, Hamami fails to teach that transferring said host to a predetermined default mode operation.

In the same field of endeavor, Border discloses that path selection rules can be defined in a profile and a path is selected by applying the path selection rules. IP packets are routed based on the rules. IP packets may be dropped when one or more primary paths fail (Border: column 10, line 56 through column 11, line 43). Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to

apply failure recovery technique disclosed by Border into the method of Hamami. The motivation would have been to provide flexibility with respect to assigning paths (Border: column 10, line 64-65).

Response to Arguments

The applicant submits, as in page 11, that the combination of Hamami and Lamport does not teach or suggest the monitoring the state of a critical up-link or an active up-link. In reply, Hamami discloses the use of the Operations, Administration and Maintenance (OAM) F5 end to end cells to detect the failure of the primary path (Hamami: column 3, lines 55-57). In addition, Lamport discloses that each host is connected to two switches by distinct links and each switch, in turn, is connected to the rest of the network by at least two links such that if one link fails, the other link can be activated (Lamport, column 33, lines 51-59).

The applicant states, as in page 11, that Hamami does not teach or suggest the host device monitors only the up-link part of the active connection for implementing a fast recovery process. In reply, Hamami discloses the use of the Operations, Administration and maintenance (OAM) F5 flow to monitor the conditions of the primary path (Hamami: column 3, lines 55-57). In other words, the condition of each link between any two nodes along the path is being monitored. If the condition is not

acceptable, the host will be notified and corrective action will be taken by the host (Hamami: column 9, lines 55-65).

The applicant states, as in page 11, that Lamport does not teach or suggest that a dependent downlink is considered to have failed if the uplink connection of a network node fails. In reply, Lamport discloses that each host is connected to two switches and each switch is connected to the rest of the network by at least two links. If a link or node fails, the redundant link or node will be used instead (Lamport: column 33, lines 51-59).

Claims 5 and 17 remain to be rejected. The Examiner respectfully submits that claims 5 and 17 are anticipated by Hamami for the same reason explained above.

Claims 1, 9, 14, 16, and 18 remain to be rejected. The Examiner respectfully submits that claims 1, 9, 14, 16, and 18 are unpatentable over Hamami in view of Lamport for the same reason explained above.

Dependent claims 2-4, 7, 10-13, and 15 remain to be rejected. The Examiner respectfully submits that claims 2-4, 7, 10-13, and 15 are unpatentable over Hamami in view of Lamport for the same reason explained above.

Dependent claims 6 and 8 remain to be rejected. The Examiner respectfully submits that claims 6 and 8 are anticipated by Hamami.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juvena W. Loo whose telephone number is (571) 270-1974. The examiner can normally be reached on Mon.-Fri. : 7:30am - 4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571) 272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KWANG BIN YAO
SUPERVISORY PATENT EXAMINER

Juvena W Loo
Examiner
Art Unit 2616